

**REMARKS:**

**AMENDMENTS TO THE SPECIFICATION**

The Applicant has amended two paragraphs in the specification to properly identify NIST as the National Institute of Standards and Technology. The Applicant submits that this meaning of the acronym NIST is well-known to those of skill in the relevant art and that the term "NIST traceable" is well known as referring to traceability to a reference source at the National Institute of Standards and Technology. As such, no new matter has been added with this amendment.

**CLAIM AMENDMENTS**

Claims 3 and 5 have been amended to correct minor typographical errors. The Applicant submits that these amendments are not being made for any reason related to patentability. To expedite prosecution, the Applicant has made amendments to claims 14, 16, 18, 21, and 27 that address the Examiner's objections and rejections with respect to 35 USC 112. Specifically, the Applicant has amended claims 14, 16 and 21, to recite that the device elements set forth in the claims, e.g., tuning controllers, operate in response to signals generated upon execution of the computer readable instructions. Support for these amendments can be found in the specification in FIG. 2 and the section bridging page 9, line 14 to page 10, line 26. As such, no new matter has been entered with these amendments. The Applicant submits that these amendments merely make explicit that which was implicit in the claims as filed. As such, no limitation of these claims has been narrowed within the meaning of the decision in *Festo*.

**CLAIM OBJECTIONS**

The Examiner objected to claims 15, 16, and 21 as being of improper dependent form for failing to further limit the subject matter of a previous claim. The Examiner argues that it is vague and indefinite, if the applicant intends to claim the laser device system or the method of processing.

The Examiner states that the claims are "confused and indefinite when written method steps in the Apparatus/Device claims." In addition, the Examiner states that a claim must recite what it is claiming because it is not permissible to read limitations appearing in the specification into the claims when they recite "NIST traceable". Furthermore the Examiner states that "claims 17-19, 21, 25-27 are rejected base [sic] on the same reason."

The Applicant submits that the Examiner's objection on the grounds improper dependent form is completely without merit with respect to independent claims 15, 16 and 21. Furthermore, with respect to claim 15, the applicants submit that this claim is written in means-plus-function form consistent with 35 USC 112, sixth paragraph. As such, the method-like steps recited in claim 15 are not objectionable per se. The Applicant therefore respectfully requests that the Examiner withdraw the objections to claims 15, 16 and 21.

In response, to the Examiner's objection to the term "NIST traceable" the Applicant respectfully points out that MPEP 2106 states rather clearly that an applicant may define terms in the specification. MPEP 2106 specifically states:

10 Office personnel must rely on the applicant's disclosure to properly determine the meaning of terms used in the claims. *Markman v. Westview Instruments*, 52 F.3d 967, 980, 34 USPQ2d 1321, 1330 (Fed. Cir.) (*en banc*), *aff'd*, U.S. , 116 S. Ct. 1384 (1996). An applicant is entitled to be his or her own lexicographer, and in many instances will provide an explicit definition for certain terms used in the claims.

15 Thus, the Applicant submits that there is nothing vague, indefinite or otherwise objectionable to the use in a claim of a term having a clearly defined meaning in the specification. The limitation "NIST traceable" has not been imported into the claim from the specification, as the term is set forth expressly in the claim. The Applicant has unambiguously defined this term in the specification.

20 However, to expedite prosecution, the Applicant has amended claims 18 and 27 to replace "NIST Traceable" with "calibrated in a manner traceable to a National Institute of Standards and Technology reference source" as set forth in the specification at page 1, lines 23-24 of the specification. As such, claims 18 and 27 are neither vague nor indefinite as amended. Furthermore, the Applicant submits that these amendments merely make explicit that which was implicit in the claims as filed. As such, this amendment does not narrow any limitation of claims 25 18 and 27 within the meaning of the decision in *Festo*.

Furthermore the Applicant submits that it is unclear what the Examiner means when he states that "claims 17-19, 21, 25-27 are rejected base [sic] on the same reason." If these claims are objected to for the use of the term "NIST traceable", the objection is completely without merit

with respect to claims 17, 19, 21, 25 and 26 which neither use the term nor depend from a claim that does. If these claims are objectionable for mixing method and device language, the Applicant submits that, for the reasons set forth below, the amendments to claims 16, 18, and 21 address these concerns.

## CLAIM REJECTIONS

### 35 USC 112

The Examiner has rejected claims 2-19, 21, and 25-27 under 35 U.S.C. 112, second paragraph as being indefinite. In rejecting claims 2, 5, 14, 15, 16 and 21, the Examiner states that it is not clear whether the method steps are performed by computer program, a mental function, or any device as shown in the figures. The Examiner further states that the claims fail to provide any "elements" of a laser device for performing the recited method steps or functions as required under 35 USC 112 2<sup>nd</sup> paragraph. The Examiner has rejected claims 3-4, 6-12, 13, 17-19 and 25-27 for the same reason.

The Applicant submits that the Examiner's arguments with respect to claims 2-13 are without merit since these claims are *method* claims, whose limitations are, by their very nature *functional*. As set forth in MPEP 2173.05(g):

A functional limitation is an attempt to define something by what it does, rather than by what it is (e.g., as evidenced by its specific structure or specific ingredients). There is nothing inherently wrong with defining some part of an invention in functional terms. Functional language does not, in and of itself, render a claim improper. *In re Swinehart*, 439 F.2d 210, 169 USPQ 226 (CCPA 1971).

MPEP 2173.05(g) further states:

A functional limitation must be evaluated and considered, just like any other limitation of the claim, for what it fairly conveys to a person of ordinary skill in the pertinent art in the context in which it is used. A functional limitation is often used in association with an element, ingredient, or step of a process to define a particular capability or purpose that is served by the recited element, ingredient or step.

The Applicant submits that claims 2-13 set forth the specific capabilities and purposes recited by the steps therein. Thus, the Applicant's use of functional language in method claims 2-13 is proper under 35 USC 112 and the MPEP.

Furthermore, with respect to claim 15, 35 USC 112, paragraph 6 states:

5        "An element in a claim for a combination may be expressed as a means or step for performing a specified function *without the recital of structure, material, or acts in support thereof*, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof." [Emphasis added]

Thus, 35 USC 112 does not require the recitation of any structure, material or acts in a means plus function clause. Therefore, claim 15 is neither vague nor indefinite.

10       Furthermore, claim 5 recites measuring frequency differences "*with a frequency detector*" and other details of the calibration method. As such, the Applicant submits that claim 5 is not vague or indefinite.

15       The Examiner states that it is indefinite when method steps are written into Apparatus/Device claims, especially dependent claims written in method steps. In response, the Applicant respectfully submits that it is acceptable practice to define a machine or apparatus claim in terms of a particular set of instructions for operating the machine embodied as processor readable instructions stored in memory. Specifically, MPEP 2106 states

      If a claim defines a useful machine or manufacture by identifying the physical structure of the machine or manufacture in terms of its hardware or hardware and software combination, it defines a statutory product. See, e.g., *Lowry*, 32 F.3d at 1583, 32 USPQ2d at 1034-35; *Warmerdam*, 33 F.3d at 1361-62, 31 USPQ2d at 1760.

20       As such, there is nothing inherently vague or indefinite about defining a machine in terms of a hardware/software combination as recited in claims 16 and 21.

25       However, to expedite prosecution, the Applicant has amended claims 14, 16 and 21 to specifically recite that the tuning controllers operate in response to signals generated upon execution of computer readable instructions. Thus, with respect to these claims, it is now clear that a computer program executes the method steps by in conjunction with devices specifically shown and described in the drawings (e.g., the detector 220 and tuning controllers 204, 205 of FIG. 2). As such, the Applicant submits that claims 2-19, 21, and 25-27 are neither vague nor indefinite.

35 USC 103

Claims 2-19, 21, and 25-27 were rejected under 35 U.S.C. §103, as being obvious over US Patent 6,163,555 to Siddiqui (hereinafter Siddiqui) or US Patent 6,389,046 to Stayt Jr. (hereinafter Stayt). States that Siddiqui shows in figures 1, 2, 3 and discloses in the ABSTRACT an optical frequency generator that aligns at least two or more lasers and sets specifically the frequency with an optical frequency meter or calibration. The Examiner further states that Siddiqui shows an optical signal generator apparatus for calibration comprising: first and second lasers, first and second tuning controllers, an optical coupler, a frequency detector, and a controller coupled to the frequency detector that has a process or and a memory. The Examiner argues that since claims 2, 5, and 14 recite the same or identical elements/limitations it is inherent to use Siddiqui to recite the method of calibrating a frequency difference, product by process. The Examiner further argues that Stayt shows the above in figures 1, 4.

The Applicants respectfully traverse the rejections on the grounds that the Examiner has failed to establish a prima facie case of obviousness. To establish a prima facie case, the Examiner must show that there is some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings and that the prior art reference(s) teach or suggest all the claim limitations. (See MPEP 2142) The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed.Cir.1991). Here the Examiner has done neither of these things. Specifically, claims 2, 5, 14, 15, 16 and 21 recite calibrating with respect to tuning parameters of the lasers. The Examiner has pointed to no teaching or suggestion in either Siddiqui or Stayt of calibrating a frequency difference between two lasers with respect to tuning parameters. Instead Siddiqui teaches calibrating a *frequency meter* using tunable frequency calibration lasers having their frequencies aligned with spectral absorption frequency line standards. Siddiqui is devoid of any teaching or suggestion of calibrating a *frequency difference* between the *lasers* with respect to tuning parameters. Furthermore, a cursory word search of Stayt reveals that the words calibrate or calibration appears nowhere in Stayt.

In addition claims 2, 14, 15, 16 and 21 recite "coordinating the resulting frequency difference calibrations for the first and second narrow frequency ranges to calibrate the frequency difference with respect to the one or more tuning parameters over the extended frequency range."

The Examiner has pointed to no teaching or suggestion in Siddiqui or Stayt of such a coordinating step.

Furthermore, claim 5 recites a very specific sequence of steps for calibrating a frequency difference between two or more lasers. The Examiner has pointed to no teaching or suggestion within Siddiqui or Stayt of such a specific sequence of steps.

Thus, neither Siddiqui nor Stayt nor any combination thereof teaches or suggests all the limitations of claims 2, 5, 14, 15, 16 and 21. Therefore, a prima facie case of obviousness is not present with respect to these claims.

Furthermore, the Examiner has not set forth an motivation any motivation at all for combining the teachings of Siddiqui and/or Stayt. Instead, the Examiner states that since claims 2, 5, 14 recite all the same elements/limitations [as Siddiqui] it is inherent to use Siddiqui to recite the method of calibrating a frequency difference. This argument is improper on two grounds. First, the Examiner is arguing that the claims recite features found in the prior art and not that the prior art teaches or suggests all the limitations of the claims. The Examiner has failed to show how the prior art would motivate one of skill in the art to combine prior art teachings to obtain the invention. In addition, the Examiner has cited no grounds of rejection at all for claim 16. Therefore, the Examiner has not established a prima facie case of obviousness since obviousness cannot be established absent some teaching, suggestion or incentive supporting the combination (ACS Hospital Systems, Inc. v. Montefiore Hospital, 732 F. 2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984)). Absent such a showing in the prior art, the Examiner has impermissibly used the applicants teaching to hunt through the prior art for the claimed elements and combine them as claimed (see In re Vaeck, 947 F. 2d 488, 20 USPQ 2d 1438 (Fed. Cir. 1991); In re Bond, 910 F. 2d 831, 15 USPQ 2d 1566 (Fed. Cir. 1990); In re Laskowski, 871 F. 2d 115, 117, 10 USPQ 2d 1397, 1398 (Fed. Cir. 1989)). The use of hindsight is never permissible to establish obviousness.

The Applicant submits that claims 3-13, 17-19 and 25-27 depend, either directly or indirectly from claims 2, 5, 14, 15, 16 and 21 and recite additional features therefor. Therefore, for the reasons set forth above, these dependent claims define an invention suitable for patent protection.

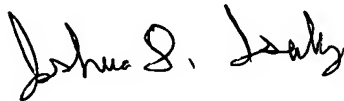
Furthermore, with respect to claims 5, 6, 7, and 9, the Examiner appears to have overlooked the fact that if the frequency difference is greater than the range of the detector, one cannot measure the frequency difference as recited in claim 5 which recites that "*the first frequency difference value lies within a finite range of the frequency detector.*" Thus the combination of Siddiqui

with skill in the art does not teach and teaches away from claim 5 and a prima facie case of obviousness is not present. Furthermore, claims 6, 7 and 9 depend, either directly or indirectly on claim 5 and recite additional features therefor. As such, a prima facie case of obviousness is not present with respect to claims 6, 7, and 9. Therefore, claims 5, 6, 7, and 9 define an invention suitable for patent protection.

#### CONCLUSION

For the reasons set forth above, the Applicant submits that all claims are allowable over the cited art and define an invention suitable for patent protection. Furthermore, for the reasons set forth above, the Applicant submits that the claims are neither vague nor indefinite. The Applicants therefore respectfully request that the Examiner enter the amendment, reconsider the application, and issue a Notice of Allowance in the next Office Action.

Respectfully submitted,



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